



IN THE MATTER OF

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By Samsung Electronics Co., Ltd.

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Technology Center 2600

I, Jeong-hee Lee, an employee of Y.P.Lee & Associates of The Cheonghwa Bldg., 1571-18 Seocho-dong, Seocho-gu, Seoul, Republic of Korea, hereby declare that I am familiar with the Korean and English languages and that I am the translator of the priority document (Korean Patent Application No. 98-63169) and certify that the following is to the best of my knowledge and belief a true and correct translation.

Signed this 26th day of March 2003.

Jeonghee Lee



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A B S T R A C T

[Abstract of the Disclosure]

A wireless resource allocation method considering retransmission in a wireless communication system is provided. In the wireless resource allocation
5 method in the wireless communication system including a plurality of wireless terminals and a single access point (AP), the AP performs a check to determine whether there is an error in the data which was received from the plurality of wireless terminals. When detecting an error from the data, the AP informs a corresponding wireless terminal of error occurrence and allocates a wireless resource for
10 retransmission of the data, simultaneously.

[Representative Drawing]

FIG. 3.

SPECIFICATION

[Title of the Invention]

METHOD FOR ALLOCATING WIRELESS RESOURCE IN WIRELESS COMMUNICATION SYSTEM

5 [Brief Description of the Drawings]

FIG. 1 is a flow chart of a conventional wireless resource allocation method between a wireless terminal and an access point (AP);

FIG. 2 shows the configuration of a wireless communication system according to the present invention; and

10 FIG. 3 is a flowchart of a wireless resource allocation method in the wireless communication system of FIG. 2 according to the present invention.

[Detailed Description of the Invention]

[Object of the Invention]

[Technical field of the Invention and Prior art belonging to the Invention]

15 The present invention relates to a method for allocating a wireless resource in a wireless communication system, and more particularly, to a wireless resource allocation method considering retransmission in a wireless communication system.

Generally, in a wireless communication system includes a single access point (AP) and a plurality of wireless terminals, the wireless terminals can communicate
20 with each other through the AP. A medium access control (MAC) mode with respect to the shared wireless resources and a wireless resource allocation method are defined between each wireless terminal and the AP.

FIG. 1 is a flow chart of a conventional wireless resource allocation method between a wireless terminal and an AP. Primarily, when a wireless terminal
25 determines that data to be transmitted exists in step 112, the wireless terminal requests the AP to allocate a wireless resource thereto in step 114. The AP allocates the wireless resource to the wireless terminal considering the wireless resource allocation request of the wireless terminal and its own transmission data in step 116.

Subsequently, the wireless terminal transmits the data to the AP in step 118. When an error occurs in the data which has been transmitted from the wireless terminal to the AP in step 120, the AP informs the wireless terminal that there is an error in the received data in step 122. The wireless terminal then requests the AP to allocate a wireless resource for retransmission of the data, which has had an error, in step 124. The AP allocates the wireless resource requested by the wireless terminal in step 126. The wireless terminal thus retransmits the data from which the error was detected to the AP in step 128.

However, in the conventional wireless resource allocation method as shown in FIG. 1, delay time of data transmission becomes longer because it takes some time for data to be retransmitted. Moreover, each wireless terminal wastes a wireless resource by transmitting a message to request the wireless resource allocation for data retransmission to the AP, thereby decreasing an actual data transmission rate.

[Technical goal of the Invention]

It is an object of the present invention to provide a wireless resource allocation method in a wireless communication system comprising a single access point (AP) and a plurality of wireless terminals, wherein the AP informs a corresponding wireless terminal of an error occurrence and simultaneously allocates a wireless resource to the corresponding wireless terminal when there is an error in data received from each wireless terminal, thereby reducing the time required for data transmission and increasing the efficiency of bandwidth use.

[Structure and Operation of the Invention]

To achieve the object of the present invention, there is provided a wireless resource allocation method in a wireless communication system including a plurality of wireless terminals and a single AP. The method includes the steps of performing a check to determine whether there is an error in the data which was received from a wireless terminal by the AP, and informing the wireless terminal of error occurrence and allocates a wireless resource for retransmission of the data, simultaneously, when the AP detects a data error in the checking step.

Referring to FIG. 2, a wireless communication system of the present invention comprises a plurality of wireless terminals 210 and 220 and a single access point (AP) 230. The wireless terminals 210 and 220 can communicate with each other through the AP 230. The AP 230 and the wireless terminals 210 and 220
5 communicate with one another using common wireless resources. A wireless medium access control (MAC) protocol is defined between the AP 230 and the wireless terminals 210 and 220 to prescribe an access control method for the wireless resources.

Each of the wireless terminals 210 and 220 requests the AP 230 to allocate a
10 wireless resource thereto when each has data to transmit and then transmits the data when the wireless resource is allocated.

FIG. 3 is a flow chart of a wireless resource allocation method in the wireless communication system of FIG. 2 according to the present invention. Primarily, a wireless terminal 210 or 220 performs a check to determine whether data to be
15 transmitted exists in step 310. If the data exists, the wireless terminal 210 or 220 requests wireless resource allocation of the AP in step 320. The AP 230 allocates a wireless resource to the wireless terminal 210 or 220 in step 330. The wireless terminal 210 or 220 received the wireless resource allocation transmits the data to the AP 230 in step 340.

The AP 230 performs a check to determine whether an error occurs in the
20 data received from the wireless terminal 210 or 220 in step 350. If the error occurs in the data, the AP 230 informs error occurrence to the wireless terminal 210 or 220 and allocates a wireless resource to allow the corresponding wireless terminal 210 or 220 to retransmit the data, simultaneously, in step 360. When informed of the
25 error occurrence, the wireless terminal 210 or 220 retransmits the data using the wireless resource allocated by the AP 230 in step 370.

While this invention has been particularly shown and described with reference
30 to a preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

[Effect of the Invention]

As described above, according to the present invention, when an AP detects the occurrence of an error in data which is transmitted from a wireless terminal, the AP allocates a wireless resource for retransmission to the transmitting wireless terminal while informing the wireless terminal of the occurrence of an error of the data. Therefore, the data which has had an error is immediately retransmitted, thereby reducing delay in data transmission. In addition, the wireless terminal does not need to send a wireless resource allocation request message for the retransmission of the data having had an error to the AP, thereby increasing the efficiency of bandwidth use in a wireless communication system.

What is claimed is:

1 1. A wireless resource allocation method in a wireless communication
2 system including a plurality of wireless terminals and a single access point, the
3 method comprising the steps of:

4 performing a check to determine whether there is an error in data which was
5 received from the wireless terminals in the access point; and

6 informing a corresponding wireless terminal of error occurrence and allocating
7 a wireless resource for retransmission of the data to the wireless terminal,
8 simultaneously, in the access point.

1 2. The wireless resource allocation method of claim 1, wherein the
2 access point allocates the wireless resource when an error occurs in the received
3 data without transmission of a wireless resource allocation request message for the
4 retransmission by the wireless terminal.

FIG. 1

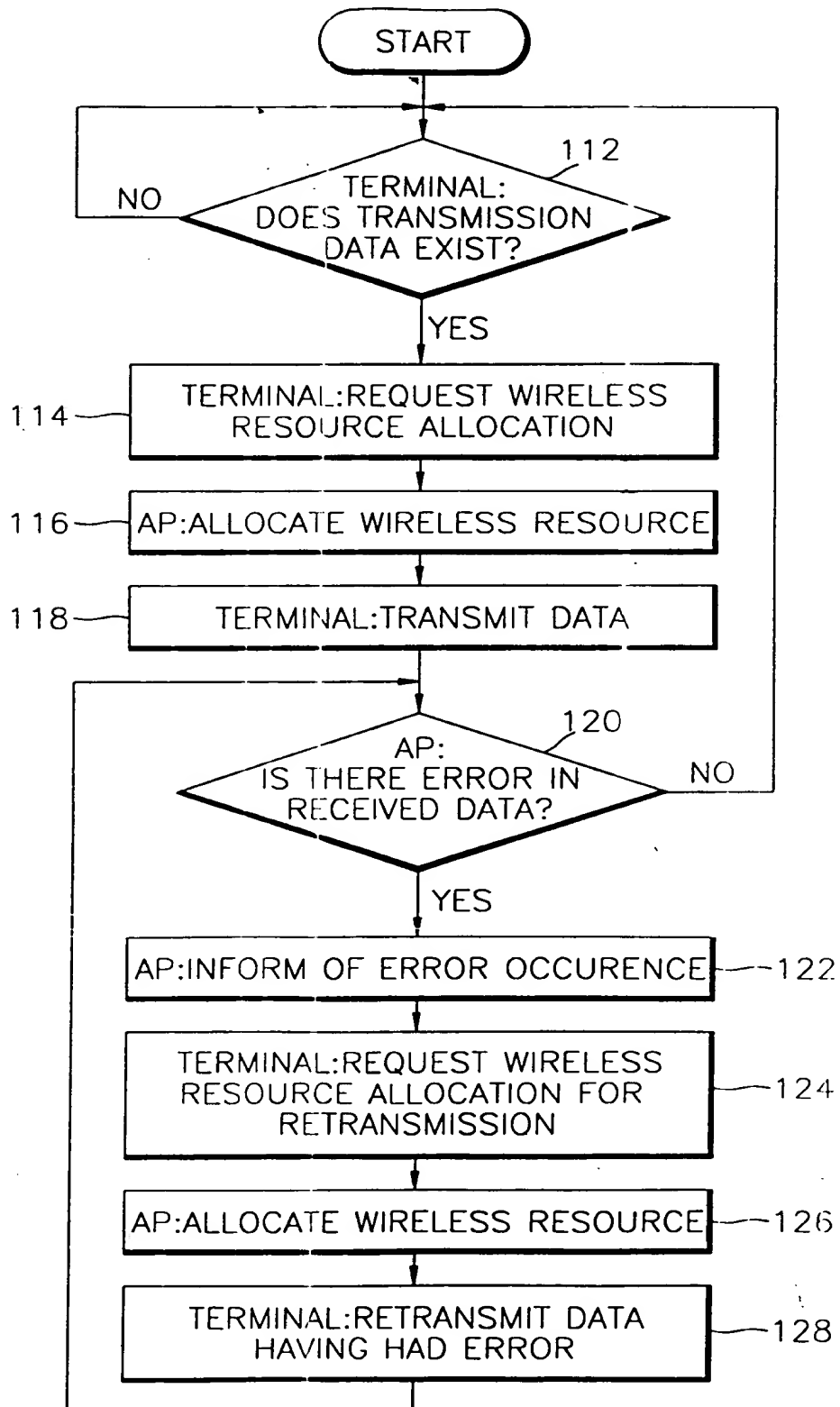


FIG. 2

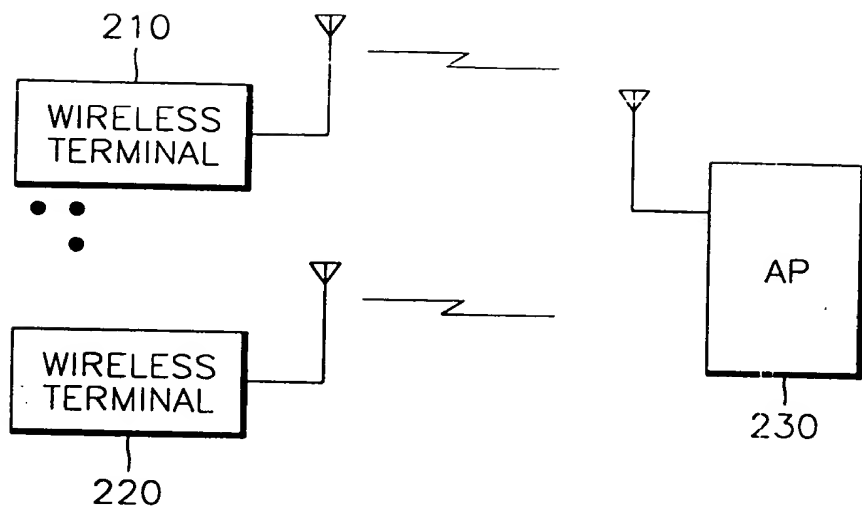


FIG. 3

